

IN THE CLAIMS:

Kindly amend Claims 11 and 12 as follows. The following is a complete listing of the claims, and replaces all earlier listings and all earlier versions:

Claim 1. (Original) A back side incident type image pickup sensor having on the front side of a semiconductor substrate a photoelectric conversion portion and an electric circuit, and having on the back side of the semiconductor substrate an opening through which a radiation beam is incident, the incident radiation beam being detected by the photoelectric conversion portion formed on the front side of the semiconductor substrate, wherein the electric circuit is disposed at a given distance in the horizontal direction from the opening.

Claim 2. (Original) A back side incident type image pickup sensor according to claim 1, wherein the semiconductor substrate is a single crystal silicon substrate.

Claim 3. (Original) A back side incident type image pickup sensor according to claim 1, wherein the semiconductor substrate is reduced in thickness after a semiconductor integrated circuit that constitutes the photoelectric conversion portion is formed.

Claim 4. (Original) A back side incident type image pickup sensor according to claim 1, wherein the radiation beam is infrared light.

Claim 5. (Original) A back side incident type image pickup sensor according to claim 4, wherein the infrared light has a wavelength in a range of 975 to 1150 nm.

Claim 6. (Original) A back side incident type image pickup sensor according to claim 1, wherein the radiation beam is an X-ray.

Claim 7. (Original) A back side incident type image pickup sensor according to claim 1, wherein the photoelectric conversion portion is composed of a photodiode.

Claim 8. (Original) A back side incident type image pickup sensor according to claim 1, wherein the electric circuit serves as one of a driver circuit for driving the photoelectric conversion portion and a signal processing circuit for processing a signal from the photoelectric conversion portion.

Claim 9. (Original) A back side incident type image pickup sensor according to claim 1, wherein the given distance is 0.303 times the thickness of the semiconductor substrate or more.

Claim 10. (Original) A back side incident type image pickup sensor according to claim 1, wherein the given distance is 50 μm or more.

Claim 11. (Currently Amended) A back side incident type image pickup sensor according to claim 1, ~~wherein~~ further comprising:

a dummy pixel ~~[[is]]~~ formed in an offset portion between the electric circuit on the front side of the semiconductor substrate and the opening configured to remove an electric charge in the offset portion.

12. (Currently Amended) A back side incident type image pickup sensor according to claim 1, ~~wherein~~ further comprising:

a diffusion region ~~for absorbing electric charges~~ is formed in ~~[[the]]~~ an offset portion between the electric circuit on the front side of the semiconductor substrate and the opening configured to remove an electric charge in the offset portion.